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REMARKS

Claims 1-20 were pending in the present Application. Claims 1, 2, 3, 5, 7-10, 12, 16, and 19 have been amended and Claims 23-26 have been added. No new matter has been introduced by way of amendment or addition. For example, support for the amendment to Claims 1, 2, 3, 5, 7-10, 12, 16, and 19 can be found at least in paragraphs [0017], [0030], and [0037] of the Specification as originally filed. Likewise, support for the addition of Claims 23-26 can be found in at least paragraph [0016] of the Specification as originally filed.

Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

Claim Rejections Under 35 U.S.C. § 103(a)

A. Claims 1, 2, 8-12, 16, 17, 19, and 20 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over U.S. Patent No. 4,289,685 to Druschke *et al.* (hereinafter "Druschke"). Applicants respectfully traverse the rejection.

Independent process Claims 1, 16, and 19 have in common the features of, inter alia, a process for producing a fire resistant polycarbonate sheet, comprising compounding an aqueous solution *consisting of an organic flame retardant salt with a finished polycarbonate* to form a fire resistant polycarbonate, wherein the organic flame retardant salt is *incompatible* with the polycarbonate composition and shear is applied during the compounding.

Druschke fails to establish a *prima facie* case of obviousness because it fails to teach or suggest Applicants' claimed feature of compounding with an extruder an aqueous solution of an organic flame retardant salt with a finished polycarbonate composition to form a fire resistant polycarbonate composition. Rather, Druschke teaches and suggests:

[T]he aqueous salt solution is combined with the polycarbonate solution, which has been washed free from electrolytes, immediately before evaporation of the solvent and the water. Col. 2, ll. 37-40 (emphasis added). The salt-containing polycarbonates are then isolated via a devolatilization extruder and are taken off as a strand and granulated. Col. 2, ll. 44-46. Thorough mixing

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of the phases to form a homogenous mixture can be further promoted by using customary amounts of suitable emulsifiers. Col. 2, ll. 23-25.

A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983), *cert. Denied*, 469 U.S. 851 (1984). Moreover, to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981 (CCPA 1974). Applicant's process does not require solvent for the polycarbonate because the polycarbonate is in finished form, i.e., no solvents. Likewise, it is unnecessary to emulsify Applicants' fire resistant polycarbonate because it is not in solution. Therefore, Druschke fails to disclose compounding a finished polycarbonate with an aqueous salt solution in a compounder and forming granulate. Druschke requires mixing together a polycarbonate solution (typically in methylene chloride/chlorobenzene) with an aqueous solution of flame retardant salt. The emulsion formed by mixing the aqueous and organic solutions is fed into a film evaporator and the solvents are distilled off. When considering the Druschke reference as a whole, it fails to teach Applicants' claimed feature of compounding with an compounder an aqueous solution of an organic flame retardant salt with a finished polycarbonate to form a fire resistant polycarbonate.

Even further, the Druschke process requires more energy to distill off the solvent since both the polycarbonate and the flame retardant salt are in solution. Applicants' process, therefore, is more energy efficient and less costly than the process taught by Druschke. As such, Druschke does not provide a motivating force or suggestion to modify the reference in order to do Applicant's process. Again, because Druschke fails to teach Applicants' claimed feature of compounding with an extruder an aqueous solution of an organic flame retardant salt with a finished polycarbonate to form a fire resistant polycarbonate, Applicants assert that a *prima facie* case of obviousness has not been established against Claims 1, 2, 8-12, 16, 17, 19, and 20.

For at least these reasons, Applicants respectfully request reconsideration and withdrawal of the rejection to Claims 1, 2, 8-12, 16, 17, 19, and 20.

B. Claims 1-3, 5, 7-13, and 16-20 are rejected under 35 U.S.C. 103(a) as being

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unpatentable over [U.S. Patent No. 4,113,695 to Mark (hereinafter "Mark"). Applicants respectfully traverse this rejection.

Mark fails to establish a *prima facie* case of obviousness because it fails to teach or suggest Applicants' claimed feature of compounding with an extruder an aqueous solution consisting of an organic flame retardant salt with a finished polycarbonate to form a fire resistant polycarbonate. Rather, Mark teaches and suggests compounding **both an organic flame retardant salt and an inorganic flame retardant salt** in aqueous solutions with a polycarbonate. Mark does not teach or suggest modifying the process to compound only an aqueous solution consisting of an organic flame retardant salt with a finished polycarbonate composition. In fact, it can be argued that Mark teaches away from compounding just an organic salt with the polycarbonate. Mark teaches that:

The combination of the organic and inorganic salts not only results in improved flame retardancy but also allows the use of even lower concentrations of each of the salts than is possible in the individual formulations." Col. 1, ll. 58-61 (emphasis added).

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984). Moreover, as stated above, a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983), *cert. Denied*, 469 U.S. 851 (1984). Given that Applicants' claimed range of a single organic flame retardant salt overlaps with that disclosed by Mark, one would consider this to be unexpected in view of the teachings of Mark. In Table 1, Applicants' were able to achieve a UL-94 rating of V-0 for its product, which is clearly unexpected in view of what Mark teaches. Mark teaches that lower concentrations of each of the organic and inorganic salt is possible when used together than would be possible if either an organic or inorganic salt alone was utilized. Therefore, to suggest Mark teaches or motivates one of ordinary skill in the art to modify the reference as stated in the Office Action, would be to render the Mark process unsatisfactory for its intended purpose. Moreover, one would be lead away from using only an


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organic flame retardant salt to achieve improved flame retardancy by the teachings of Mark. Therefore, because Mark does not teach, motivate, or suggest compounding **an aqueous solution consisting of an organic salt** (independent of any inorganic salts) with a finished polycarbonate, Applicants assert that a *prima facie* case of obviousness has not been established against Claims 1-3, 5, 7-13, and 16-20.

For at least these reasons, Applicants respectfully request reconsideration and withdrawal of the rejection to Claims 1-3, 5, 7-13, and 16-20.

C. Claims 1, 8-12, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,600,742 to Higgins (hereinafter "Higgins"). Applicants respectfully traverse this rejection.

Higgins fails to establish a *prima facie* case of obviousness because it fails to teach or suggest Applicants' claimed feature of compounding with an extruder an aqueous solution of an



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organic flame retardant salt to achieve improved flame retardancy by the teachings of Mark. Therefore, because Mark does not teach, motivate, or suggest compounding **an aqueous solution consisting of an organic salt** (independent of any inorganic salts) with a finished polycarbonate, Applicants assert that a *prima facie* case of obviousness has not been established against Claims 1-3, 5, 7-13, and 16-20.

For at least these reasons, Applicants respectfully request reconsideration and withdrawal of the rejection to Claims 1-3, 5, 7-13, and 16-20.

C. Claims 1, 8-12, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,600,742 to Higgins (hereinafter "Higgins"). Applicants respectfully traverse this rejection.

Higgins fails to establish a *prima facie* case of obviousness because it fails to teach or suggest Applicants' claimed feature of compounding with an extruder an aqueous solution of an organic flame retardant salt with a finished polycarbonate to form a fire resistant polycarbonate, wherein the organic flame retardant salt is **incompatible with the polycarbonate**. Rather, Higgins teaches:

...[T]he compositions of the invention are prepared from a mixture of (A) an organic carbonate polymer or polymer blend, and (B) a minor amount of at least one metal sulfonate which is **compatible with the carbonate polymer**. . . . See Col 2, ll. 45-50; Col. 6, ll. 63-67 (emphasis added).

Higgins teaches using a compatible metal sulfonate with a carbonate polymer to produce a non-opaque product. Higgins discloses, however, that "samples produced in this manner are clear with **some yellow color**." Col. 10, ll. 47-48 (emphasis added). For Applicants' sheet applications, yellow color is absolutely undesirable. One of skill in the art would recognize and appreciate that the organic flame retardant salts listed in Claim 2 and having the formula disclosed in Claim 7 are incompatible with the polycarbonate. One of skill in the art being a person having a Ph.D. in Organic Chemistry with at least 5 years professional experience. As such, one of skill in the art would not look to Higgins for incompatible organic salts that would provide the optical properties of Applicants' process as listed in Table 1 of the

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Specification.

Furthermore, Higgins discloses **dispersing** the compatible metal sulfonate in water and mixing the **dispersion** with the carbonate polymer. Col. 9, ll. 64-66. This is not the same as **compounding an aqueous solution of an organic flame retardant salt . . . incompatible with the polycarbonate composition**. Dispersion of Applicants' organic flame retardant salt rather than having the salt in an aqueous solution as disclosed would leave surface defects in the extruded sheet, as well as affect other optical properties, such as haze and/or transmission. Thus, because Higgins neither teaches or suggests compounding an aqueous solution of organic flame retardant salt with a finished polycarbonate, wherein the organic flame retardant salt is incompatible with the polycarbonate, Applicants assert that a *prima facie* case of obviousness has not been established against Claims 1, 8-12, and 19.

For at least these reasons, Applicants respectfully request reconsideration and withdrawal of the rejection to Claims 1, 8-12, and 19.

D. Claims 3, 5, 7, 11, 13, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Druschke in combination with Mark. Applicants respectfully traverse this rejection.

Druschke fails to teach or suggest Applicants' claimed feature of compounding with an extruder an aqueous solution of an organic flame retardant salt with a **finished** polycarbonate to form a fire resistant polycarbonate. Rather, Druschke teaches or suggests a process combining an aqueous salt solution with a polycarbonate solution. Druschke does not teach compounding an aqueous salt solution with a finished polycarbonate composition **not in solution** such as disclosed by Applicants' process. Mark fails to compensate for the deficiencies of Druschke. As a whole, Mark teaches and suggests compounding an aqueous solution of a combination of organic and inorganic flame retardant salts with a polycarbonate. As such, assuming in arguendo the references are combinable, which they are not, a combination of the teachings and suggestions provided by Mark with Druschke would result in a process of compounding/extruding a finished polycarbonate composition with a combination of organic and inorganic flame retardant salts. If one were to combine the teachings and suggestions of Druschke with Mark, the resulting

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combination would be directed to a process of emulsifying/extruding an aqueous salt solution with a polycarbonate solution. This is markedly different than Applicants' claimed feature of compounding with an extruder an aqueous solution **consisting of an organic flame retardant salt** with a **finished** polycarbonate to form a fire resistant polycarbonate.

A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983), *cert. Denied*, 469 U.S. 851 (1984). The mere fact that references **can** be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990). ([a]lthough a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 916 F.2d at 682.). Both Druschke and Mark, separately and in combination, fail to teach or suggest to one of skill in the art Applicants' claimed process of compounding an aqueous solution consisting of an organic flame retardant salt with a finished polycarbonate to form a fire resistant polycarbonate, wherein the organic flame retardant salt is incompatible with the polycarbonate. Therefore, Applicants assert that a *prima facie* case of obviousness has not been established against Claims 3, 5, 7, 11, 13, and 18.

E. Claims 11, 13, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Higgins in combination with Mark. Applicants respectfully traverse this rejection.

Higgins fails to teach or suggest Applicants' claimed feature of compounding with an extruder an aqueous solution of an organic flame retardant salt with a finished polycarbonate to form a fire resistant polycarbonate, wherein the organic flame retardant salt is **incompatible with the polycarbonate composition**. Mark fails to compensate for the deficiencies of Higgins. As a whole, Mark teaches and suggests compounding an aqueous solution of a combination of organic and inorganic flame retardant salts with a polycarbonate. As such, assuming in arguendo the references are combinable, which they are not, a combination of the teachings and suggestions provided by Mark with Higgins would result in a process of compounding/extruding a finished polycarbonate with a combination of organic and inorganic flame retardant salts. If one were to

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combine the teachings and suggestions of Higgins with Mark, the resulting combination would be directed to a process of compounding/extruding a metal sulfonate compatible with a carbonate polymer. This is markedly different than Applicants' claimed feature of compounding with an extruder an aqueous solution **consisting of an organic flame retardant salt** with a finished polycarbonate to form a fire resistant polycarbonate, **wherein the organic flamer retardant salt is incompatible with the polycarbonate.**

A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983), *cert. Denied*, 469 U.S. 851 (1984). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990). ([a]lthough a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 916 F.2d at 682.). Both Higgins and Mark, separately and in combination, fail to teach or suggest to one of skill in the art Applicants' claimed process of compounding an aqueous solution consisting of an organic flame retardant salt with a finished polycarbonate to form a fire resistant polycarbonate, wherein the organic flame retardant salt is incompatible with the polycarbonate. Therefore, Applicants assert that a *prima facie* case of obviousness has not been established against Claims 11, 13, and 18.


It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance are requested.

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If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,

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